

## Species *Zwartia lucis*

### Etymology

[lu'cis] **L. fem. adj.** *lucis*, of light, referring to the presence of light driven proton pumps (rhodopsins) in the type strain.

### Nomenclatural type

[NCBI Assembly: GCA\\_965234455.1](#) <sup>Ts</sup>

### Reference Strain

[Strain sc|0038968](#): GE-14

### Description

Type strain is *Zwartia lucis* GE-14 (GCA\_965234455.1), isolated from 5 m depth from Greifensee, Switzerland (date: 2019-04-03), *via* high-throughput dilution to extinction cultivation. GE-14 has a genome size of 3.7 Mbp with a genomic GC content of 50.9%, contains 6 rRNA genes and 41 tRNAs. The genome is a high-quality draft consisting of 7 contigs. In contrast to other *Zwartia* sp., the genome contains genes encoding rhodopsins and the biosynthetic pathway for retinal biosynthesis. No genes for flagellar or pilus assembly and chemotaxis were annotated. Pathways for nitrate reduction, cyanate, urea and taurine degradation, thiosulfate oxidation (Sox pathway), glycolate and methane/alkanesulfonate oxidation, and the biosynthesis of all amino acids were predicted. Further, pathways for thiamine, riboflavin, pantothenate, coenzyme A, THF, ubiquinone, and heme biosynthesis were identified. The closest cultivated relative is *Zwartia panacis* strain KCTC42751 (GCF\_030410395.1), with an average amino acid identity of 82.1% and average nucleotide identity of 77.6%. Current GTDB classification (R220): d\_\_Bacteria; p\_\_Pseudomonadota; c\_\_Gammaproteobacteria; o\_\_Burkholderiales; f\_\_Burkholderiaceae; g\_\_Zwartia; s\_\_.

### Classification

*Bacteria* » *Pseudomonadota* » *Betaproteobacteria* » *Burkholderiales* » *Alcaligenaceae* » *Zwartia* » *Zwartia lucis*

### References

Effective publication: Salcher et al., 2025 [1]

### Registry URL

<https://seqco.de/i:48725>

## References

1. Salcher et al. (2025). Bringing the uncultivated microbial majority of freshwater ecosystems into culture. *Nature Communications*. [DOI:10.1038/s41467-025-63266-9](https://doi.org/10.1038/s41467-025-63266-9)